



NIM Model 622 Quad 2-Fold Logic Unit

The Model 622 Quad 2-Fold Logic Unit has four independent coincidence channels, each with 2 inputs and 6 outputs. Each channel is switch-selectably capable of determining an AND or an OR condition of the two inputs. In addition, a front panel veto input provides the option of inhibiting all channels simultaneously upon application of a fast, NIM-level signal.

Each channel of the 622 provides five NIM-level current source outputs and one complementary output. This high fan-out is achieved by means of an output circuit design that minimizes quiescent power. As a result, up to 12 Model 622's can be powered by a single NIM-standard power bin.'

Output durations are adjustable (via front-panel, screwdriver-control pot) from 5 ns to 1 us, and are highly stable and independent of input amplitude, duration and rate. Their long-term stability is excellent, permitting their direct use in subsequent coincidence applications without any need for external clipping cables. Risetimes and falltimes are less than 2.5 ns except on the single negative and complementary outputs, where they are typically less than 1.5 ns.

The LRS Model 622 Quad 2-Fold Logic Unit incorporates much of the basic circuitry found in the widely-used and highly-reliable Model 621AL Quad Discriminator. The single 621AL input was replaced by two summed inputs, and the 621AL threshold control pot was replaced by a two-position switch, which selects one of two threshold levels corresponding to either an AND or an OR requirement of the two inputs. Current limiters, added to provide an internal current standard, also provide inherent input protection against transient signals at least +/-50 V by 5 /us in size.

The pulse-forming circuit of the Model 622 is deadtimeless (updating), and the unit may be retriggered during the time an output from a previous input signal is being produced.

*(96 watts, with +/- 6 V at 1 0 A shared.)

SPECIFICATIONS

NIM Model 622 QUAD 2-FOLD LOGIC UNIT

INPUT CHARACTERISTICS	
Number of Channels:	4, all identical.
Logic Inputs:	Two, 50 Ohm direct-coupled; reflections < 7% for standard AEC fast logic signals (-600 mV minimum) of 2 ns risetime.

Slow Bin Gate:	Via rear connector, with rear-panel, ON/OFF switch; quiescently +4 volts, clamp- ing to ground inhibits logic unit; direct-coupled; risetimes and falltimes approxi- mately 50 ns.
Veto:	Front-panel connector permits simultaneous inhibiting of all channels; 50 Ohm; requires NIM-level signal (> -600 mV); direct-coupled; must overlap leading edge of input signal that would otherwise cause the coincidence condition; must precede input by approximately 5 ns.
OUTPUT CHARACTERISTICS	
Bridged Negative Outputs:	2 pairs; NIM, quiescently 0 mA, -32 mA during output; duration, 5 ns to 1 /As, continuously variable up to 600 ns via front-panel screwdriver control (nar- rower widths possible at slight expense of amplitude); risetimes and falltimes (all outputs terminated in 50 Ohm) typically 2.0 ns (max. 2.5 ns), 10% to 90%. Output falltimes slightly longer on wide output durations. Width stability better than +/- 0.2%/°C maximum. Updating.
Fast Negative Timing Output:	One, NIM; quiescently 0 mA, -16 mA during output. Other characteristics same as above, except risetimes are typically 1.5 ns (max. 2.0 ns) and minimum width is -- 6 ns.
Complementary Output:	One; quiescently, -16 mA, 0 mA during output. Other characteristics same as for Fast Negative Timing Output.
GENERAL	
Functions:	Fan-in (2-fold); coincidence; inhibit.
Maximum Rate:	1 1 0 MHz typical, input and output.
Coincidence Width:	Determined by input pulse durations; total widths from approximately 1.0 ns up without limit.
Double-Pulse Resolution:	Less than 9 ns at minimum output width setting.
Input-Output Delay:	9.5 ns typical.
Multiple-Pulsing:	None; one and only one output pulse of preset duration is produced for each input pulse, regardless of input pulse amplitude or duration.
Packaging:	In RF-shielded, AEC/NIM #1 module (AEC Report #TID-20893); Lemo-type connectors.
Current Requirements:	-6 V at 450 mA; +6 V at 215 mA; -12 V at 165 mA; +12 V at 20 mA; -24 V at 85 mA.

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